

ORIGINAL
RECEIVED

AUG 08 1997

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Public Notice)
)
Commission Seeks Additional Comment In)
Wireless Enhanced 911 Rulemaking Proceeding) CC Docket No. 94-102
Regarding ex Parte Presentations On Certain)
Technical Issues)

COMMENTS OF
THE E911 WIRELESS COALITION

On behalf of the E911 Wireless Coalition ("Coalition"),¹ the Personal Communications Industry Association ("PCIA"), by its attorneys, respectfully submits its comments in response to the *ex parte* filings referenced in the above-captioned Public Notice.² While the Coalition supports the delivery of enhanced 911 ("E911") capabilities to the broadest base of users feasible, provision of certain E911 functions requires technical capabilities that currently do not exist within most deployed systems. As the Coalition members have maintained throughout this proceeding, the Commission's decision to impose E911 mandates on classes of wireless carriers must be facilitated by a thorough and complete understanding of the technical capabilities and limitations of existing and planned systems. In this light, the Coalition provides below its

¹ The members of the Coalition include: PCIA, Omnipoint Communications, PrimeCo Personal Communications, BellSouth Corporation, Ericsson, Inc., Nokia, Sprint Spectrum, L.P., Nortel, Aerial Communications, Inc., Siemens Wireless Terminals, U S WEST Communications, and Motorola, Inc.

² Public Notice, *Commission Seeks Additional Comment In Wireless Enhanced 911 Rulemaking Proceeding Regarding Ex Parte Presentations On Certain Technical Issues*, CC Docket 94-102, DA 97-1502 (July 16, 1997) ("Public Notice").

comments on the technical feasibility of providing call back functions for certain types of wireless technologies.

I. INTRODUCTION

In its *First Report and Order* in this proceeding,³ the Commission promulgated Section 20.18(d) of its Rules, which states that, "As of [18 months after the effective date of this rule], licensees subject to this section must relay the telephone number of the originator of a 911 call ... to the designated Public Safety Answering Point through the use of Pseudo Automatic Number Identification and Automatic Number Identification." As a result of questions raised regarding the technical feasibility of implementing this and other rules, the Commission prepared a set of questions that would shed light on the ability of carriers and manufacturers to implement the rules contained in the *First Report and Order*.

Three parties, the Wireless E911 Coalition, GTE Wireless ("GTE"),⁴ and the Ad Hoc Alliance for Public Access to 911 ("Ad Hoc Alliance") all made *ex parte* filings in response to the Commission's request. In its filing, the Coalition—as a group composed of both wireless equipment manufacturers and carriers—provided detailed technical reasons why Section 20.18(d), in its present form, would require drastic changes to certain types of mobile systems.

³ *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Calling Systems*, CC Docket 94-102, Report and Order and Further Notice of Proposed Rulemaking, 61 Fed. Reg. 40348 (1996) ("*Report and Order*").

⁴ In its filing, GTE stated that, "In the case of callback to roamers, it is possible for the PSAPs to use a 'roam access Port' number first and wait for the tone to enter the actual 10 digit MIN of the original caller." GTE Filing at 2 (Question 5). To the extent GTE is describing the manner in which GTE's wireless systems might be used to call back roamers, the Coalition does not dispute this statement.

The Coalition specifically noted that only when a fully validated subscriber is service initialized and registered on the serving network can these requirements of subscriber information and call-back number be fully met by all technologies. Prior to making this *ex parte* filing, the members of the Coalition, and the Coalition itself, have expended a great deal of time and effort in developing and clarifying technical solutions to implementing the phase I requirements set forth in the *First Report and Order*, and, as part of this effort, have had four meetings with the Commission staff.

In its *ex parte* filing, the Ad Hoc Alliance has now gone beyond the phase I requirements and indicated its belief that cellular switches, as currently configured, are capable of allowing carriers to meet the requirements of Section 20.18(d) for all users, whether or not they are validated, service initialized, and registered. While the Coalition supports creative problem-solving in attempting to craft a technical solution to remaining call back problems, the Ad Hoc Alliance proposal reflects a limited understanding about the use of temporary number assignments within cellular switches, and is unworkable in today's environment.

As discussed below, the Coalition has explored the potential use of temporary number assignments for call back delivery with both carriers and manufacturers, and has determined that this capability does not currently reside in cellular switches. In addition, the Coalition notes that the Telecommunications Industry Association ("TIA") Standards Committee TR45.2 has already considered, and rejected, the use of temporary number assignments for call back delivery. It is counterproductive to pursue the use of such architectural modifications to expand the call back requirements within the timeframe contemplated in the *First Report and Order*.

II. THE CURRENT INSTALLED BASE OF CELLULAR MOBILE SWITCHES CANNOT UTILIZE PSEUDO-MIN FOR CALL BACK PURPOSES

Throughout its filing, the Ad Hoc Alliance suggests that wireless carriers are currently capable of implementing PSAP call back through the use of a pseudo-MIN, which it defined as "a 10 digit directory telephone number assigned to the mobile station by the cell switch."⁵ For example, the Ad Hoc Alliance stated that:

The software necessary to assign a temporary call back telephone number (pseudo MIN) to any handset is already resident in many cell switches. The cellular industry has used pseudo MINs for call backs to roaming handsets for many years. Passing this temporary local call back number to PSAPs for all 911 calls is a trivial exercise. Thus, the PSAP should be able to call back all callers to 911 ... as soon as the Order is implemented.⁶

Similarly, the Ad Hoc Alliance noted that

There is nothing in the Order or the Rules which say that the MIN must be preassigned to the mobile station and resident in the handset. The current cell switch technology is designed to permit the assignment of a temporary MIN to a handset by the cell switch at the time the 911 call is placed. This technology also permits the transmission of such a temporary telephone number to the PSAP. Thus, all 911 calls can be easily code identified to PSAPs with call-back capability, as contemplated by the Order, today!⁷

⁵ Ad Hoc Alliance Filing at 3 (Question 8).

⁶ Ad Hoc Alliance Filing at 2 (Question 5).

⁷ *Id.* at 3 (Question 8). *See also id.* at 3-4 (Questions 10, if a PSAP can only process 7 digits and roamers present 10 digit ANIs, these roamers can be served by delivering "the 7-digit local number, the temporary pseudo MIN to the PSAP"); *id.* at 4 (Question 11, current switches have the "capacity to provide temporary pseudo MINs for call back by all PSAPs"); *id.* at 4 (Question 13, "[c]all back capability can be provided for all calls by the use of the pseudo MINs").

The Ad Hoc Alliance has considerably overstated the ease with which cellular call back can be performed using what it refers to as "pseudo-MINs." The closest analog is more properly referred to as Temporary Local Directory Numbers ("TLDNs"). Cellular switches are currently able to assign TLDNs in a manner that superficially resembles the capabilities requested by the Ad Hoc Alliance. Since, however, the switches are incapable of performing the exact functions described by the Ad Hoc Alliance, there remain significant technical and economic obstacles to transforming the cellular network's existing capabilities into a viable call back system for non-service initialized customers and roamers that failed registration.

At present, cellular switches contain two features that are conceptually similar to the capability proposed by the Ad Hoc Alliance. First, there exists a manual process to associate a local directory number with a roamer's MIN so that calls to the local directory number will result in a call being directed to the roamer's MIN via a page. The assignment of the "manual roamer" TLDN typically is maintained for 24 to 48 hours, but requires intervention by cellular system personnel. While automatic roaming has made this mechanism largely obsolete, it continues to be available in some cellular systems. Second, there exists an automatic process of temporarily associating a local directory number with a roamer when requested by the IS-41 network strictly for the purpose of routing a call from the roamer's home system to the serving system (automatic roaming call delivery). The assignment of this TLDN expires after the maximum expected duration of the call setup process (*i.e.*, the TLDN exists for only a matter of seconds).

The Ad Hoc Alliance's proposal would require development and implementation of a third and significantly more complex mechanism to assign a non-TLDN, "temporary number" automatically from a separately administered pool of such numbers. This temporary assignment process, could, in theory, be implemented when a failed attempt to retrieve a valid mobile

directory number ("MDN") occurs in the process of initiating a 911 call. Such failures occur, for example, when the caller is not service initialized, or is a roamer that failed registration. A "temporary number" might also be assigned upon determining that a valid mobile subscriber has service features that prevent terminating calls (*e.g.*, call blocking) or lacks automatic roaming capability so calls to the MDN will not be recognized by a roamer's home system. In the latter cases, the more extensive capabilities implicated would likely require additional IS-41 messaging to be defined by standards organizations.

Thus, implementation of a "temporary number"-based call back solution would necessitate fundamental changes to call processing and call delivery systems, and require a total re-evaluation of the network's operations. It would also require an additional partitioned block of the serving system's allocated directory numbers to be set aside and administered to ensure an adequate supply of "temporary numbers." While such a modification may not require base station, handset, or air-interface modifications, given the extent of the other changes necessitated, development of a "temporary number"-based call back solution by manufacturers would require at least 18 to 24 months from the date requirements are set, or standards, if needed, are developed. Additional time would also be required for network integration and deployment by carriers.

Notably, even if a "temporary number"-based call back solution were feasible, there are some situations where such a call back capability simply will not work. For example, when the mobile unit has moved into a different system, the old serving system will have no way to communicate to the new system the fact that the mobile has been assigned a "temporary number" for call back purposes. In addition, if there are many mobiles with identical MINs—a possible

occurrence if non-service initialized customers must be called back—the calls cannot be reliably completed.

In sum, the Ad Hoc Alliance's proposal will require a major technical effort to implement, with commensurate time and monetary requirements. Indeed, for these and other reasons, the TIA TR45.2 E911 Ad Hoc group, including public safety representation (*i.e.*, a NENA representative), previously rejected this use of "temporary numbers" as a potential call back solution for wireless E911 customers.

III. THE AD HOC ALLIANCE FILING DOES NOT ADDRESS CALL BACK FOR GSM-BASED TECHNOLOGY

In addition to the significant obstacles set forth above regarding cellular systems, the Ad Hoc Alliance's proposed call back solution does not address systems based on the Global System for Mobile/PCS1900 ("GSM") technology, nominally discussing only AMPS, TDMA, and CDMA systems.⁸ Because GSM will be used by a significant number of broadband PCS providers, it is essential that the Commission have accurate data regarding its 911 capabilities. The Coalition therefore offers the following description of the call back capabilities of GSM systems.

GSM switches are currently capable of providing E911 (*i.e.*, call back number and appropriate routing) for authorized subscribers with Subscriber Identity Module ("SIM") cards in their handsets. GSM switches, if so configured, can also provide 911 access to mobiles without

⁸ For example, the Ad Hoc Alliance's answers to Questions 2, 5, 8, 10, 11, and 13 do not address GSM networks.

SIM cards and to roamers that failed registration. In those situations, however, providing call back—much less a call back number—is not possible.

In the first situation where the SIM card has been removed from the handset, there is no means to page the appropriate mobile unit. The SIM contains the International Mobile Subscriber Identity ("IMSI") of the caller, which is the number that the network uses to track the subscriber's information. When an IMSI is available, the switch can query its Home Location Register ("HLR") to get a call back number. When a call delivery for that call back number is received from a PSAP that wishes to re-contact a disconnected 911 caller, the switch queries its VLR for the last known location of the mobile and pages the mobile. Thus, an IMSI in combination with a known subscriber location allows the switch to connect the call to the mobile.

When the SIM has been removed, the only number sent to the switch is the International Mobile Equipment Identity ("IMEI"), which is associated with the handset itself. There is no way for the network to associate an IMEI with an IMSI, or a call back number, because the IMSI/SIM are, by the very definition of GSM, associated with the user, not the handset. That is, a GSM customer can take a SIM card out of his or her handset and use it in another handset (with a different IMEI) and still get the same service. Thus, when no IMSI is available, the call back number cannot be determined. Further, even if a call back number could be created for the subscriber, there is currently no way to page the mobile using the IMEI. Creating this paging capability alone would require extensive changes to the network and all handsets—including those already in the field.

In the second situation, a roamer that failed registration can be provided access to 911. However, a call back number is not available, and call back infeasible, if an roamer that failed

registration makes an emergency call because, without authorization, the network does not have a copy of the subscriber's information in its VLR. Without this subscriber information, the system cannot determine the mobile's location. Roamers that failed registration can attempt to originate emergency calls, and if the carrier's switches are so configured, these calls will bypass the authorization process and be connected. Even if the call is allowed, however, there will be no call back number associated with it.⁹

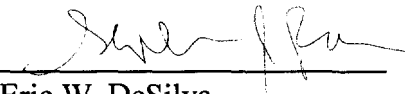
⁹ As with the cellular systems noted above, when a mobile unit has moved into a different GSM-based system, the old serving system will have no way to inform the new serving system that a “temporary number” was assigned to the mobile.

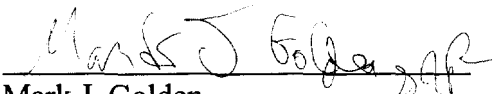
IV. CONCLUSION

The wireless telecommunications industry is currently expending significant resources in order to meet the Commission's phase I E911 requirements and negotiate cost recovery schemes with the states. Against this backdrop, the Coalition does not believe the imposition of additional, major system modifications—not required for phase I—should be considered. In addition, the Commission should ensure that its current E911 requirements are compatible with all technologies, including GSM.

Respectfully submitted,

PERSONAL COMMUNICATIONS INDUSTRY ASSOCIATION

By: 
Eric W. DeSilva
Stephen J. Rosen
WILEY, REIN & FIELDING
1776 K Street, NW
Washington, DC 20006
(202) 429-7000

By: 
Mark J. Golden
Senior Vice President,
Industry Affairs
Mary E. Madigan,
Vice President,
External Affairs
PERSONAL COMMUNICATIONS
INDUSTRY ASSOCIATION
500 Montgomery Street, Suite 700
Alexandria, VA 22314-1561
(703) 739-0300

Its Attorneys

August 8, 1997

CERTIFICATE OF SERVICE

I hereby certify that on this 8th day of August, 1997, I caused copies of the foregoing
"Comments of the E911 Wireless Coalition" to be mailed via first-class postage prepaid mail to
the following:

John Cimko*
Nancy Boocker*
Federal Communications Commission
2025 M Street, N.W., Room 7002
Washington, D.C. 20554

Wendy C. Chow
Michael Altschul
Randall S. Coleman
Cellular Telecommunications Industry Association
1250 Connecticut Ave., N.W.
Washington, D.C. 20036

Tommie Morgan
Chairman, Government and Regulatory
Affairs Committee
Rural Cellular Association
2120 L Street, N.W., Suite 520
Washington, D.C. 20037

Bruce E. Beard
Attorney
Southwestern Bell Wireless, Inc.
13075 Manchester Road
St. Louis, MO 63131

Carol Tacker
Glen A. Glass
Southwestern Bell Mobile Systems, Inc.
17330 Preston Road, Suit 100A
Dallas, TX 75252

*Hand delivered

Robert S. Foosaner
Lawrence R. Krevor
Laura L. Holloway
Nextel Communications, Inc.
1450 G Street, N.W., Suite 425
Washington, D.C. 20005

Robert M. Gurss
Wilkes, Artis, Hedrick, & Lane,
Chartered
1666 K Street, N.W. #1100
Washington, D.C. 20006

John T. Scott, III
Crowell & Moring
1001 Pennsylvania Ave., N.W.
Washington, D.C. 20004

Kevin C. Gallagher
Senior Vice President -
General Counsel and Secretary
360° Communications Company
8725 W. Higgins Road
Chicago, IL 60631-2702

Kathleen Q. Abernathy
Donna Bethea
AirTouch Communications
1818 N Street, N.W., Suite 800
Washington, D.C. 20036

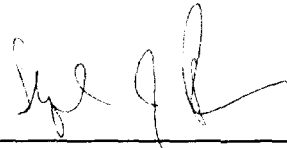
Cathleen A. Massey
Vice President - External Affairs
Douglas I. Brandon
Vice President - External Affairs
AT&T Wireless Services, Inc.
1150 Connecticut Ave., N.W., Suite 400
Washington, D.C. 20036

James R. Hobson
Donelan, Cleary, Wood & Maser, P.C.
1100 New York Avenue, N.W., #750
Washington, D.C. 20005-3934

Robert B. Kelly
Katherine S. Poole
Kelly & Povich, P.C.
Suite 800
2300 M Street, N.W.
Washington, D.C. 20037

Carol L. Bjelland
Director, Regulatory Matters
GTE Service Corporation
1850 M Street, N.W., Suite 1200
Washington, D.C. 20036

Samuel A. Simon
Jonathan D. Linkous
Issue Dynamics
901 Fifteenth Street, N.W., Suite 230
Washington, D.C. 20005



Stephen J. Rosen